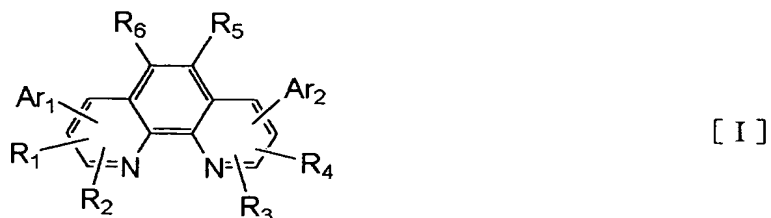


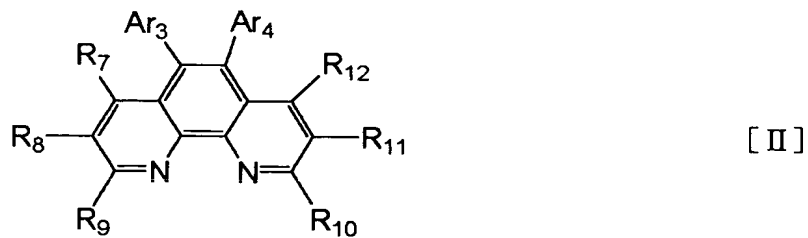
CLAIMS

1. A phenanthroline compound represented by the general formula [I]:



5 (wherein R₁, R₂, R₃, R₄, R₅ and R₆ are the same or different and each is selected from a hydrogen atom, an unsubstituted or substituted alkyl group, an unsubstituted or substituted aralkyl group, an unsubstituted or substituted aryl group, an
10 unsubstituted or substituted heterocyclic group, and a halogen atom; and Ar₁ and Ar₂ are the same or different and each is selected from an unsubstituted or substituted fluorenyl group, an unsubstituted or substituted fluoranthenyl group, an unsubstituted or
15 substituted perylenyl group, and an unsubstituted or substituted carbazolyl group).

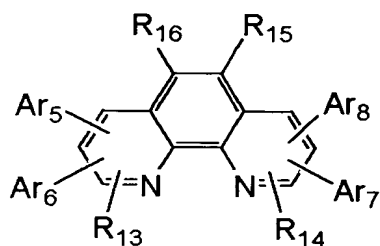
2. A phenanthroline compound represented by the general formula [II]:



20 (wherein R₇, R₈, R₉, R₁₀, R₁₁ and R₁₂ are the same or

different and each is selected from a hydrogen atom,
an unsubstituted or substituted alkyl group, an
unsubstituted or substituted aralkyl group, an
unsubstituted or substituted aryl group, an
5 unsubstituted or substituted heterocyclic group, and
a halogen atom; and Ar₃ and Ar₄ are the same or
different and each is selected from an unsubstituted
or substituted fluorenyl group, an unsubstituted or
substituted fluoranthenyl group, an unsubstituted or
10 substituted perylenyl group, and an unsubstituted or
substituted carbazolyl group).

3. A phenanthroline compound represented by
the general formula [III]:



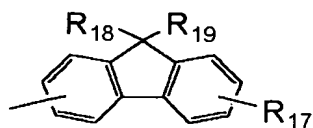
15

(wherein R₁₃, R₁₄, R₁₅ and R₁₆ are the same or different
and each is selected from a hydrogen atom, an
unsubstituted or substituted alkyl group, an
unsubstituted or substituted aralkyl group, an
20 unsubstituted or substituted aryl group, an
unsubstituted or substituted heterocyclic group, and
a halogen atom; and Ar₅, Ar₆, Ar₇ and Ar₈ are the same
or different and each is selected from an

unsubstituted or substituted fluorenyl group, an unsubstituted or substituted fluoranthenyl group, an unsubstituted or substituted perylenyl group, and an unsubstituted or substituted carbazolyl group).

5

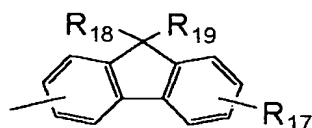
4. The phenanthroline compound according to claim 1, wherein the fluorenyl group is represented by the general formula [IV]:



[IV]

10 (wherein R₁₇ is selected from a hydrogen atom, an unsubstituted or substituted alkyl group, an unsubstituted or substituted aralkyl group, an unsubstituted or substituted aryl group, an unsubstituted or substituted heterocyclic group, a
15 substituted amino group, a cyano group, and a halogen atom; and R₁₈ and R₁₉ are the same or different and each is selected from a hydrogen atom, an unsubstituted or substituted alkyl group, an unsubstituted or substituted aralkyl group, an
20 unsubstituted or substituted aryl group, and an unsubstituted or substituted heterocyclic group).

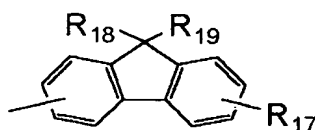
5. The phenanthroline compound according to claim 2, wherein the fluorenyl group is represented
25 by the general formula [IV]:



[IV]

(wherein R₁₇ is selected from a hydrogen atom, an unsubstituted or substituted alkyl group, an unsubstituted or substituted aralkyl group, an
5 unsubstituted or substituted aryl group, an unsubstituted or substituted heterocyclic group, a substituted amino group, a cyano group, and a halogen atom; and R₁₈ and R₁₉ are the same or different and each is selected from a hydrogen atom, an
10 unsubstituted or substituted alkyl group, an unsubstituted or substituted aralkyl group, an unsubstituted or substituted aryl group, and an unsubstituted or substituted heterocyclic group).

15 6. The phenanthroline compound according to claim 3, wherein the fluorenyl group is represented by the general formula [IV]:

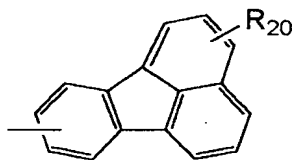


[IV]

(wherein R₁₇ is selected from a hydrogen atom, an
20 unsubstituted or substituted alkyl group, an unsubstituted or substituted aralkyl group, an unsubstituted or substituted aryl group, an unsubstituted or substituted heterocyclic group, a

substituted amino group, a cyano group, and a halogen atom; and R_{18} and R_{19} are the same or different and each is selected from a hydrogen atom, an unsubstituted or substituted alkyl group, an
5 unsubstituted or substituted aralkyl group, an unsubstituted or substituted aryl group, and an unsubstituted or substituted heterocyclic group).

7. The phenanthroline compound according to
10 claim 1, wherein the fluoranthenyl group is represented by the general formula [V]:

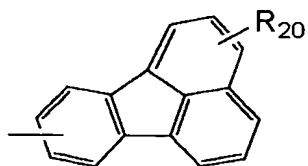


[V]

(wherein R_{20} is selected from a hydrogen atom, an unsubstituted or substituted alkyl group, an
15 unsubstituted or substituted aralkyl group, an unsubstituted or substituted aryl group, an unsubstituted or substituted heterocyclic group, a substituted amino group, a cyano group, and a halogen atom).

20

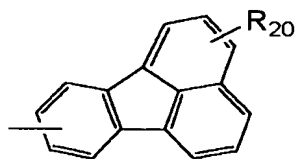
8. The phenanthroline compound according to claim 2, wherein the fluoranthenyl group is represented by the general formula [V]:



[V]

(wherein R₂₀ is selected from a hydrogen atom, an unsubstituted or substituted alkyl group, an unsubstituted or substituted aralkyl group, an
5 unsubstituted or substituted aryl group, an unsubstituted or substituted heterocyclic group, a substituted amino group, a cyano group, and a halogen atom).

- 10 9. The phenanthroline compound according to claim 3, wherein the fluoranthenyl group is represented by the general formula [V]:

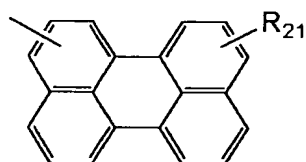


[V]

(wherein R₂₀ is selected from a hydrogen atom, an
15 unsubstituted or substituted alkyl group, an unsubstituted or substituted aralkyl group, an unsubstituted or substituted aryl group, an unsubstituted or substituted heterocyclic group, a substituted amino group, a cyano group, and a halogen
20 atom).

10. The phenanthroline compound according to claim 1, wherein the perylenyl group is represented

by the general formula [VI]:

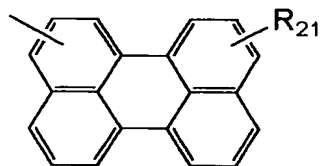


[VI]

(wherein R₂₁ is selected from a hydrogen atom, an unsubstituted or substituted alkyl group, an unsubstituted or substituted aralkyl group, an unsubstituted or substituted aryl group, an unsubstituted or substituted heterocyclic group, a substituted amino group, a cyano group, and a halogen atom).

10

11. The phenanthroline compound according to claim 2, wherein the perylenyl group is represented by the general formula [VI]:



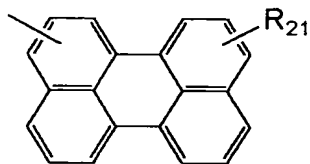
[VI]

15 (wherein R₂₁ is selected from a hydrogen atom, an unsubstituted or substituted alkyl group, an unsubstituted or substituted aralkyl group, an unsubstituted or substituted aryl group, an unsubstituted or substituted heterocyclic group, a substituted amino group, a cyano group, and a halogen atom).

20

12. The phenanthroline compound according to

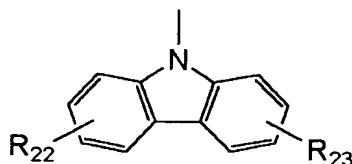
claim 3, wherein the perylenyl group is represented by the general formula [VI]:



[VI]

(wherein R₂₁ is selected from a hydrogen atom, an
5 unsubstituted or substituted alkyl group, an
unsubstituted or substituted aralkyl group, an
unsubstituted or substituted aryl group, an
unsubstituted or substituted heterocyclic group, a
substituted amino group, a cyano group, and a halogen
10 atom).

13. The phenanthroline compound according to claim 1, wherein the carbazolyl group is represented by the general formula [VII]:



[VII]

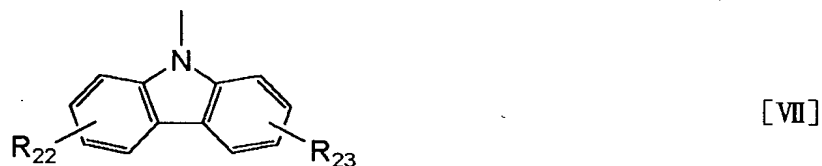
15 (wherein R₂₂ and R₂₃ are the same or different and
each is selected from a hydrogen atom, an
unsubstituted or substituted alkyl group, an
unsubstituted or substituted aralkyl group, an
20 unsubstituted or substituted aryl group, an
unsubstituted or substituted heterocyclic group, a
substituted amino group, a cyano group, and a halogen
atom).

14. The phenanthroline compound according to claim 2, wherein the carbazolyl group is represented by the general formula [VII]:



5 (wherein R₂₂ and R₂₃ are the same or different and each is selected from a hydrogen atom, an unsubstituted or substituted alkyl group, an unsubstituted or substituted aralkyl group, an unsubstituted or substituted aryl group, an
10 unsubstituted or substituted heterocyclic group, a substituted amino group, a cyano group, and a halogen atom).

15 15. The phenanthroline compound according to claim 3, wherein the carbazolyl group is represented by the general formula [VII]:



(wherein R₂₂ and R₂₃ are the same or different and each is selected from a hydrogen atom, an
20 unsubstituted or substituted alkyl group, an unsubstituted or substituted aralkyl group, an unsubstituted or substituted aryl group, an unsubstituted or substituted heterocyclic group, a

substituted amino group, a cyano group, and a halogen atom).

16. An organic light emitting device
5 comprising a pair of electrodes consisting of an anode and a cathode, and a layer comprising an organic compound comprising the phenanthroline compound set forth in claim 1, interposed between the pair of electrodes.

10

17. An organic light emitting device
comprising a pair of electrodes consisting of an anode and a cathode, and a layer comprising an organic compound comprising the phenanthroline
15 compound set forth in claim 2, interposed between the pair of electrodes.

18. An organic light emitting device
comprising a pair of electrodes consisting of an
20 anode and a cathode, and a layer comprising an organic compound comprising the phenanthroline compound set forth in claim 3, interposed between the pair of electrodes.

25 19. The organic light emitting device according to claim 18, wherein the layer comprising the organic compound comprising the phenanthroline

compound functions as an electron transporting layer or a light emitting layer.